



DB/DBW...type (Solenoid) Pilot Relief Valve

DB/DBW...5XJ...type

DBT/DBWT...type (Solenoid) Remote Pressure Valve

DBT/DBWT...type

Sizes 10, 16, 20, 25, 32
Max. Working Pressure: 350 bar
Max. Flow: 650 L/min



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Features

- For sub-plate mounting
- Porting pattern to DIN 24 340 form E and ISO 6264
- For threaded connection and installation in manifolds
- 5 pressure ratings
- Unloading operation via a built-on solenoid directional valve
- 4 adjustment versions
 - Knob
 - Adjusting bolt with protective cap
 - Lockable knob with scale
 - Knob with scale
- Optional switching shock damping (Only for DBW)

03

Function and configuration

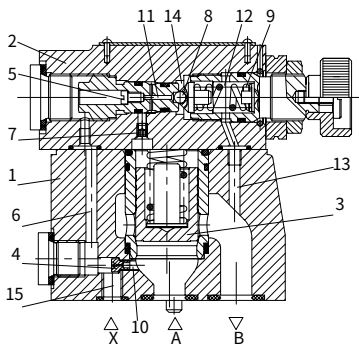
DB and DBW type valve is a pilot operated pressure relief valve, it is used to limit (DB) or limit and unload (DBW) pressure via solenoid operation. The pressure relief valves consist of main valve (1) with main spool cartridge (3) and pilot operated valve (2) with pressure adjustment elements.

· **Type DB pressure relief valves**

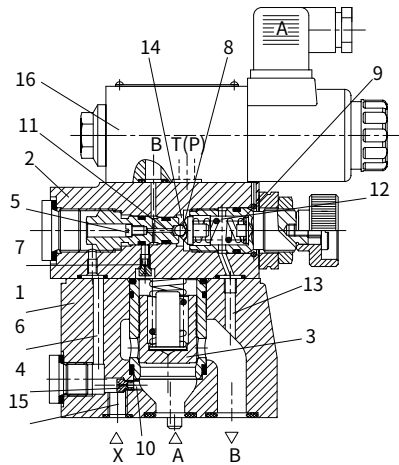
The pressure of channel A acts on the main spool (3), meanwhile, pressure is applied via control line (6) and (7) with orifice (4) and (5) on the spring loaded side of the main spool (3) and on the ball (8) in the pilot operated valve(2). If the pressure in channel A rises excess the setting value at the spring (9), the ball (8) opens against the spring (9). As for the internal control forms, signal is given by control oil (10) and (6) supplied by channel A. The oil from the spring loaded side of the main spool (3), via control line (7), orifice(11), and ball (8), then flows into spring chamber (12). Internal drain - type DB...5XJ...Y, oil flows via control line(14) into the tank. In virtue of the orifice (4) and (5), the pressure drop arises at the main spool (3), and the connection from port A to port B is open while theoperational pressure setting maintained stable. The pressure relief valve may unload or shift the different pressure (second rated pressure value) in virtue of external control port X (15).

· **Type DBW pressure relief valves**

The function of pressure relief valve type DBW is the same with pressure relief valve type DB, the difference is that valve type DBW operates unloading via a built-on directional valve(16).



Type DB pressure relief valves



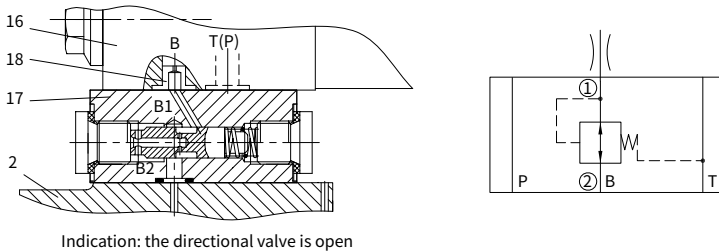
Type DBW pressure relief valves

Function and configuration

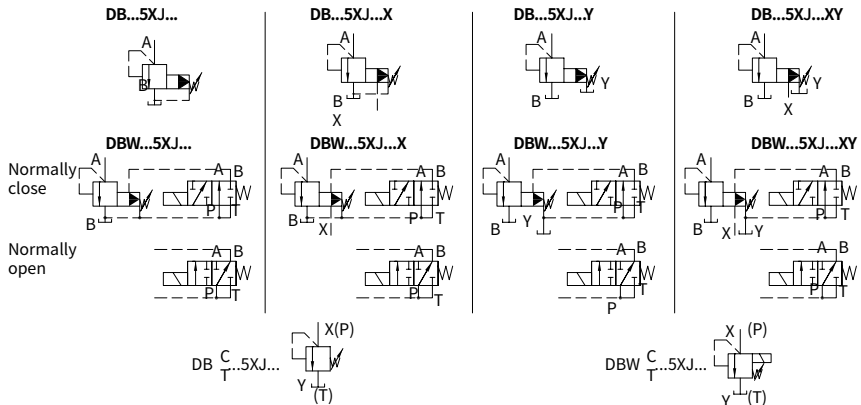
• Pressure relief valves with switching shock damping (sandwich), type DBW../..S..R12

Switching shock damping (17), the connection from B2 to B1 opens with delay to avoid peak pressure spikes and decompression in the return line. It is fitted between pilot valve (2) and the directional valve (16).

The relief degree (decompression impact) is determined by the size of the orifice (18). Orifice $\varnothing 1.2\text{mm}$ is recommended.(ordering detail:...R12 ..).



Symbols



Technical data

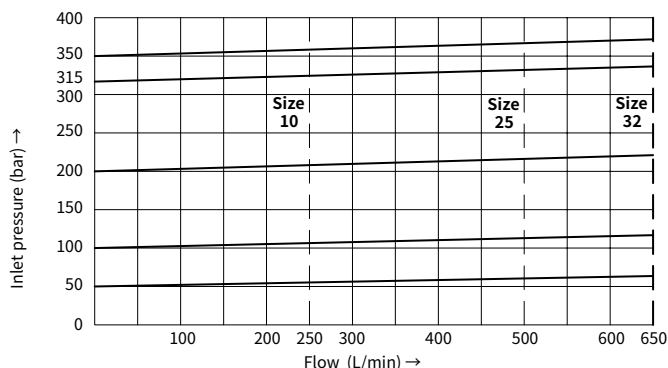
Fixing position				Optional					
Weight				DB...10	DB...15	DB...20	DB...25	DB...30	
	Sub-plate mounting	DB	kg	Approx.3	-	Approx.3.9	-	Approx.5.3	
		DBW	kg	Approx.4.5	-	Approx.5.4	-	Approx.6.8	
		DBC	kg	Approx.1.2(Type DBWC add 1.5)kg					
		DBC10 or 30	kg	Approx.1.5(Type DBWC10 and 30 add 1.5)kg					
	Threaded connection	DB..G..	kg	Approx.5.3	Approx.5.2	Approx.5.1	Approx.5.9	Approx.5.8	
		DBW..G..	kg	Approx.6.8	Approx.6.7	Approx.6.6	Approx.7.4	Approx.7.3	
Switching shock damping			kg	Approx.0.6					
Technical parameters of directional valve				Refer to the solenoid valvetype WE6,normally close use 3WE6A9,normally open use3WE6B9					
Fluid				Mineral oil - suitable for NRB and FRMseal					
				phosphate ester-suitable for FKM seal					
Fluid temperature range			°C	-30 to +80 (NRB seal)					
				-20 to +80 (FKM seal)					
viscosity range			mm²/s	10 to 800					
Degree of contamination				Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15 , ISO4406					
Max. operating pressure	Port A,B,X,P		bar	350					
	Port T (DB)		bar	315					
Max. back pressure	Port Y		DB	bar	315				
	Port Y or T		DBW	bar	AC up to 160, DC up to 210				
Max. setting pressure			bar	50;100;200;315;350					
Min. setting pressure			bar	Interrelated with Q(refer to the curve)					
Sizes				10	15	20	25	30	
Max. flow-rate	sub-plate mounting L/min			250	-	500	-	650	
	threaded connection L/min			250	500	500	500	650	

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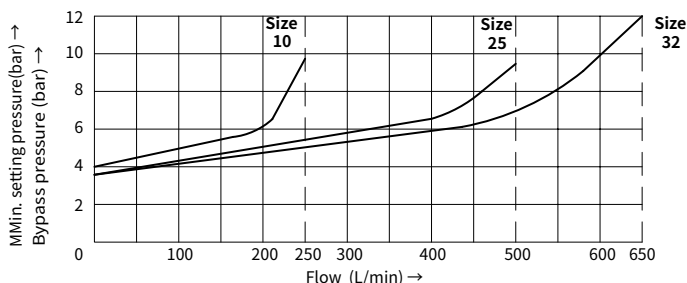
Performance curves (Measured at $t=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using HLP 46) The

characteristic curves are measured with external pilot oil drain at zero pressure.
With internal pilot oil drain, the inlet pressure at port B should be added to the value presented as curves.

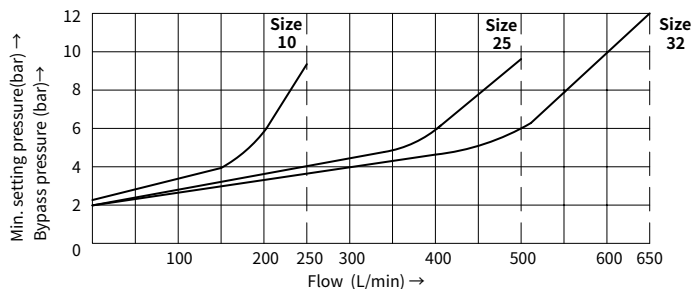
Inlet pressure in relation to the flow-rate



Minimum setting pressure and bypass pressure in relation to the flow-rate!
• Standard version



Minimum setting pressure and bypass pressure in relation to the flow-rate!
• Version "U"



(Dimensions in mm)

Valve fixing screws:

GB/T 70.1-M12×50-10.9

Internal hexagon screw

Tighten torque $M_A=130\text{Nm}$

DB/DBW20:

GB/T 70.1-M16×50-10.9

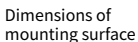
Internal hexagon screw

Tighten torque $M_A=310\text{Nm}$

DB/DBW30:

GB/T 70.1-M18×50-10.9

Internal hexagon screw

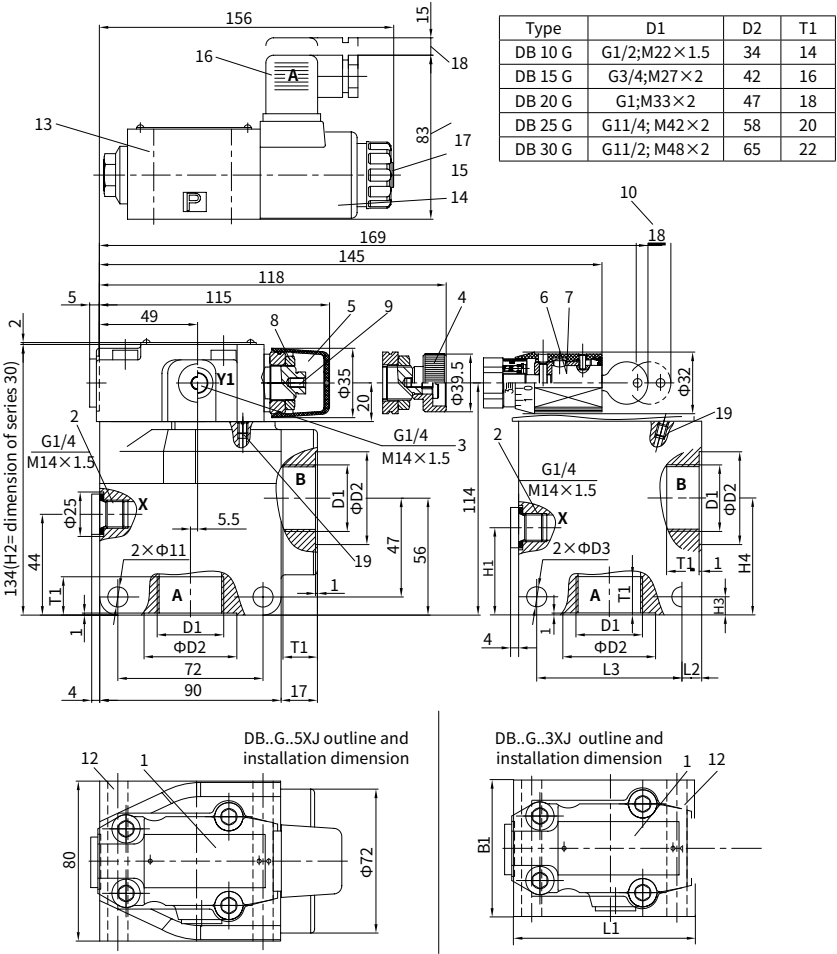


Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	D1	D2	D3	D4	O-ring(A, B)	O-ring(X)
DB/DBW 10	91	53.8	22.1	27.5	22.1	47.5	0	25.5	2	78	53.8	14	M12	6	12	17.12×2.62	9.25×1.78
DB/DBW 20	116	66.7	33.4	33.3	11.1	55.6	23.8	22.8	10.5	100	70	18	M16	6	22	28.17×3.53	9.25×1.78
DB/DBW 30	147.5	88.9	44.5	41	12.7	76.2	31.8	20	21	115	82.6	20	M18	7	30	34.52×3.53	9.25×1.78

Unit dimensions

(Dimensions in mm)

• Threaded connection



Outline and installation dimension of series 3XJ threaded connection valve:

Type	B1	D3	H1	H2	H3	H4	L1	L2	L3
DB 10 G	63	9	27	125	10	62	85	14	62
DB 15 G						57			
DB 20 G									
DB 25 G	70	11	42	138	13	66	100	18	72
DB 30 G									

(Dimensions in mm)

Technical drawing of the DB/DBW10 and DB/DBW20 sub-plates. The drawing includes a top view, a side view, and a detail view of the mounting surface. Dimensions are given in millimeters.

Top View Dimensions:

- Overall width: 169
- Overall height: 145
- Mounting hole diameter: $4 \times \Phi 8.4$
- Mounting hole spacing: 61, 51, 28, 6
- Central feature diameter: $\Phi 35$
- Central feature offset: 118, 115, 49, 5
- Mounting flange diameter: $\Phi 39.5$
- Mounting flange thickness: 4
- Mounting flange offset: 9, 5
- Mounting flange hole diameter: $\Phi 32$
- Mounting flange hole offset: 10, 18
- Mounting flange hole diameter: $\Phi 32$

Side View Dimensions:

- Overall height: 40
- Mounting flange height: 29
- Mounting flange offset: 20
- Mounting flange hole diameter: $\Phi 32$
- Mounting flange hole offset: 21, 27
- Mounting flange hole diameter: $\Phi 32$
- Mounting flange hole offset: 24, 25
- Mounting flange hole diameter: $\Phi 32$
- Mounting flange hole offset: 26, 25
- Mounting flange hole diameter: $\Phi 32$
- Mounting flange hole offset: 27

Detail View Dimensions:

- Mounting hole diameter: $\Phi 12$
- Mounting hole offset: 35, 61, 51, 28, 6
- Mounting hole diameter: $\Phi 12$
- Mounting hole offset: 37.5, 1
- Mounting hole diameter: $\Phi 12$
- Mounting hole offset: 44, 31, 4
- Mounting hole diameter: $\Phi 12$
- Mounting hole offset: 44, 31, 4
- Mounting hole diameter: $\Phi 12$
- Mounting hole offset: 44, 31, 4

Requirement for mounting surface:

Requirement for mounting surface: $0.01/100$ (flatness), 0.8 (roughness).

Sub-plate (must be ordered separately):

DB/DBW10:

- G 545/01 (G3/8), G 545/02 (M18 $\times$ 1.5)
- G 546/01 (G1/2), G 546/02 (M122 $\times$ 1)

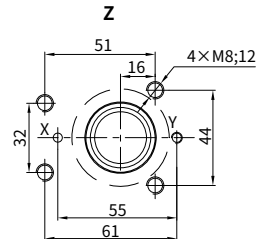
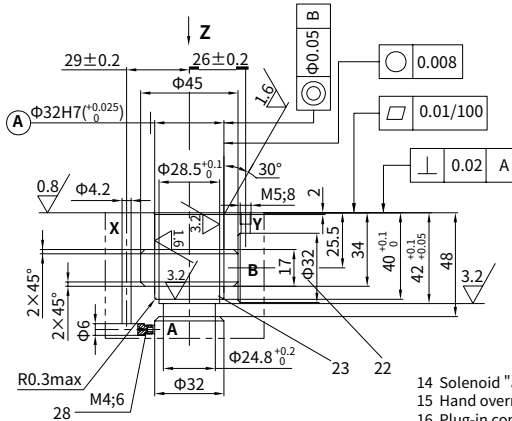
DB/DBW20:

- G 408/01 (G3/4), G 408/02 (M27 $\times$ 2)
- G 409/01 (G1), G 409/02 (M33 $\times$ 2)

DB/DBW20:

- G 409/01 (G1), G 409/02 (M33 $\times$ 2)

G 51/01(G1/4), G51/02(M14×1.5)



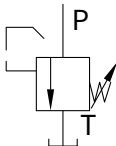
- 14 Solenoid "a"
- 15 Hand override "N" button, optional
- 16 Plug-in connector Z4
- 17 Valve dimension with standard solenoid A
- 18 Space required to remove plug-in connector
- 19 Plugged not for internal pilot oil drain
- 20 O-ring 9.25×1.78
- 21 Main spool cartridge
- 22 The $\varnothing 32$ bore may connect the $\varnothing 45$ bore at any position.
Please take care that the connection hole X and the
fixing holes are not damaged.
- 23 Back-up ring and O-ring must be inserted into this bore
before assembling the main spool.
- 24 O-ring 28×1.8 25 O-ring 27.3×2.4
- 26 O-ring 28×2.65 27 Back-up ring $28.4 \times 32 \times 0.8$
- 28 Flow controller must be ordered separately

Remote pressure adjusting valve

•Specification

	DBT	G	1	3XJ	/		
Remote pressure valve							
Threaded connection		=G				No code=	NBR seals
Adjusting handle			=1			V =	FKM seals
Series 30J to 39J (30J to 39J: unchanged installation and connection dimensions)				=3XJ		100=	Max. secondary pressure 100bar
						315 =	Max. secondary pressure 315bar

•Symbol



•Connection dimension

